

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
30 March 2006 (30.03.2006)

PCT

(10) International Publication Number
WO 2006/033025 A1

(51) International Patent Classification⁷: **C10G 2/00**,
C07C 1/20, 41/01, 41/09

(21) International Application Number:
PCT/IB2005/050448

(22) International Filing Date: 3 February 2005 (03.02.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/542,089 5 February 2004 (05.02.2004) US

(71) Applicant (for all designated States except US):
SASOL TECHNOLOGY (PROPRIETARY) LIMITED [ZA/ZA]; 1 Sturdee Avenue, Rosebank, P.O. Box 5486, 2196 Johannesburg (ZA).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **STEYNBERG, André, Peter** [ZA/ZA]; 3 Orange River Street, SE4, 1911 VANDERBIJLPARK (ZA).

(74) Agent: **VAN DER WALT, Louis, Stephanus**; Adams & Adams, Adams & Adams, Place, 1140 Prospect Street, Hatfield, PO Box 1014, 0001 Pretoria (ZA).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: HYDROCARBON SYNTHESIS

(57) Abstract: A process for synthesising hydrocarbons includes feeding a gaseous feedstock comprising hydrogen, carbon monoxide and carbon dioxide, into a dimethyl ether (DME) synthesis stage, and in the DME synthesis stage, converting a portion of the gaseous feedstock into a DME product and gaseous products. The DME product is separated from unreacted gaseous reactants and the gaseous products to obtain a tail gas comprising hydrogen and carbon monoxide. The tail gas is fed into a Fischer-Tropsch hydrocarbon synthesis stage, and the hydrogen, carbon monoxide and carbon dioxide are allowed at least partially to react catalytically in the Fischer-Tropsch hydrocarbon synthesis stage to form hydrocarbons.



WO 2006/033025 A1